

N. STAFFORD.
Key-Ring.

No. 161,174.

Patented March 23, 1875.

Fig. 1.

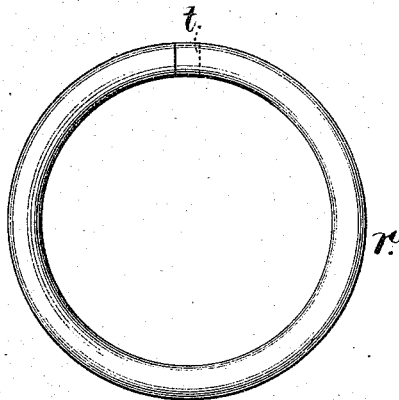
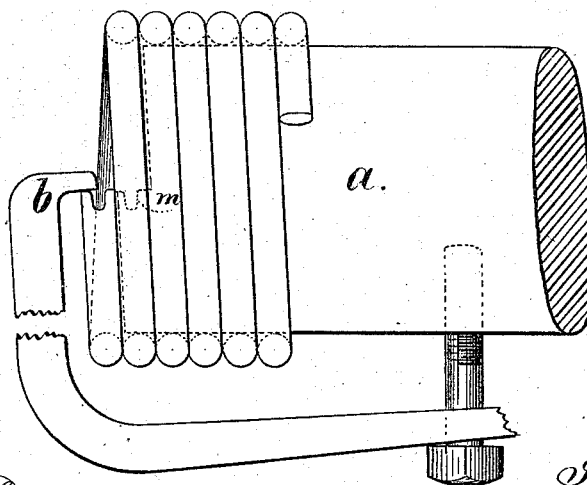


Fig. 2.



Fig. 3.



Witnesses

Chas H. Smith
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UNITED STATES PATENT OFFICE.

NELSON STAFFORD, OF BAYONNE, NEW JERSEY.

IMPROVEMENT IN KEY-RINGS.

Specification forming part of Letters Patent No. **161,174**, dated March 23, 1875; application filed December 28, 1874.

To all whom it may concern:

Be it known that I, NELSON STAFFORD, of Bayonne, in the county of Hudson and State of New Jersey, have invented an Improvement in Key-Rings, of which the following is a specification:

Key-rings have been made in a great variety of forms, so as to allow of opening the ring for the insertion or removal of the key. Among these may be mentioned a ring with a point projecting from one end and entering a round cavity at the other end of the wire forming the ring. These holes and pointed ends are expensive to make and require to be formed before the wire is wound up into the form of the ring.

My improvement is made for the purpose of increasing the strength of the connecting device, and for lessening the labor in its construction.

I make use of a tongue running across the end of the wire of the ring and parallel, or nearly so, to a plane passing through the center of the wire forming the ring, and said tongue enters a groove of corresponding shape running across the other end of the wire. This tongue and groove are very easily made, and effectually prevent any lateral action separating the ends of the ring. The tongue and groove are made with sides that are either parallel to each other or more or less inclined, or of any other desired sectional shape.

In the drawing, Figure 1 is a side, and Fig. 2 an edge, view of the key-ring complete; and Fig. 3 illustrates the devices employed in making the rings.

The ring *r* is made of wire of any desired sectional shape, and at one end is the tongue or rib *t*, and at the other end is the correspond-

ingly-shaped groove, and these are in a plane parallel, or nearly so, to a plane passing through the center of the wire of the ring, and the rib and groove interlock. It is preferable to wind the wire up into a helix slightly smaller in diameter than the desired size of the ring, and while in this condition the helix is placed in a machine illustrated in Fig. 3, there being a guide-bar, *a*, for the helix to be placed upon, and a cutter with a rounded end having a sectional shape corresponding to the rib at the end of the wire; and this cutter, when moved by competent power, acts with a correspondingly-shaped bed-shear, *m*, to separate the wire and form the rib of one key-ring and the groove of the next, so that by moving the helix around until the advancing end stops against a gage, *b*, the ring will be in a position to be cut off by another movement of the cutters, so that one ring at a time will be cut off and completely formed.

By positioning the gage the length of wire can be varied, so that the ring will be more or less expanded in bringing the ends together with the rib and groove interlocking.

I claim as my invention—

The key-ring made with a rib or tongue at one end of the wire interlocking with a groove at the other end of the wire, and parallel, or nearly so, to a plane that runs through the center of the wire composing such ring, as set forth.

Signed by me this 22d day of December, 1874.

N. STAFFORD.

Witnesses:

GEO. T. PINCKNEY,
CHAS. H. SMITH.